

REMARKS

Claims 4-13, 15, 19-22, 26-29, 33-37, and 41-44 are pending in the application and under consideration.

Table 1 on page 12 was objected to for not including sequence identification numbers. As is noted above, Table 1 has been amended to include sequence identifiers, which were present in the sequence listing filed in this case on November 8, 2004, and are also represented in the enclosed sequence listing (SEQ ID NOs:1-7).

The claims were rejected under 35 U.S.C. § 112, second paragraph for indefiniteness. As stated by the Examiner, claim 4 recites a nucleic acid molecule comprising sequences encoding the pre-membrane and envelope proteins of a West Nile virus and the capsid and non-structural proteins of a Yellow Fever virus, wherein the envelope protein comprises attenuating amino acid substitutions in positions 316 and 440. The Examiner states in the rejection that it is not clear what positions are intended, as the claim does not refer to a reference sequence, which is indicated in the specification to be that of West Nile virus strain NY99-flamingo 382-99 (GenBank Accession Number AF196835). The Examiner thus suggests overcoming this rejection by amending the claims to recite the sequence of West Nile virus strain NY99-flamingo 382-99, and to add the sequence of this strain to the sequence listing.

In response to this rejection, Applicants first note that the nucleotide (SEQ ID NO:8) and amino acid (SEQ ID NO:9) sequences of West Nile virus strain NY99-flamingo 382-99 have been added to the sequence listing. In addition, reference to these sequence identifiers have been added to the specification in the paragraph bridging pages 3 and 4, in which reference is made to West Nile virus strain NY99-flamingo 382-99. Applicants submit that this amendment does not

add new matter, as addition of this information is equivalent to the insertion of an art-recognized definition into an application, which is not considered new matter (M.P.E.P. 2163.07(I); see enclosed Genbank information for the added sequence, which was published prior to the application priority date (Exhibit A)).

Notwithstanding the addition of the sequence information to the application, Applicants respectfully submit that the claims should not be required to specify the sequence of the NY99-flamingo strain (GenBank Accession Number AF196835), or any other sequence, for the following reasons.

First, Applicants note that West Nile virus was very well characterized and identifiable by those of skill in the art well before the priority date of the present application. Indeed, publications concerning West Nile virus identified by PubMed searching date back as far as the 1950's (Exhibit B). Applicants submit that specification of West Nile virus in the present claims is not indefinite, based on its long-standing characterization.

With respect to sequences of West Nile virus, Applicants first note that the sequence of the NY99-flamingo strain was known in the art at the time the application was filed (Exhibit A) and, based on this sequence information, those of skill in the art could readily identify the residues specified in the claims in the sequence and make the specified mutations, without ambiguity. This is shown in Exhibits A and C. As is shown in Exhibit A, the West Nile virus (NY99-flamingo) envelope protein begins at nucleotide 967 and the first codon of the polyprotein begins at nucleotide 97. Thus, the envelope protein begins at amino acid 290 of the translated sequence ($967-97=870$; $870/3=290$). The positions specified in the present claims can therefore be identified by adding 107, 316, and 440 to the start of the envelope protein,

accordingly. These positions (397, 606, and 730, respectively) are marked in Exhibit C.

Applicants further note that, at the time the application was filed, sequences for numerous isolates of West Nile virus were known in the art. This can be shown, for example, by a search of Genbank databases with the terms “West Nile Virus complete genome,” which results in the identification of 10 entries, in addition to the NY99-flamingo strain, which are dated before Applicants’ November 15, 2002 priority date (also see the enclosed appendix of Genbank search results; Exhibit D). Identification of the relevant residues in these sequences can be carried out in the same manner as for NY99-flamingo, as is shown in Exhibit E. Search for sequences of the West Nile virus envelope protein only also results in the identification of many sequences.

In view of the above, Applicants respectfully submit that, to practice the present invention in connection with the NY99-flamingo and other West Nile virus strains, those of skill in the art could readily identify sequences such as those in such a Genbank search, identify the positions corresponding to those specified in the claims, and make the mutations indicated in the claims, accordingly. As these positions are readily identifiable in this manner, reference to mutations in these positions in the claims is not indefinite. Those of skill in the art could clearly understand what is covered by the claims, which are thus not indefinite. In view of this, Applicants respectfully request that the rejection be withdrawn and allowance of the claims.

CONCLUSION

Applicants submit that the claims are in condition for allowance, and such action is respectfully requested. If there are any charges or any credits, please apply them to Deposit Account No. 03-2095.

Respectfully submitted,

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Susan M. Michaud
Susan M. Michaud, Ph.D.
Reg. No. 42,885

Clark & Elbing LLP
101 Federal Street
Boston, MA 02110
Telephone: 617-428-0200
Facsimile: 617-428-7045